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A series of carbamates based on the structure of pyridostigmine (PYR) were synthesized and evaluated as potential drugs for the treatment of cognitive impairments associated with cholinergic perturbation such as in Alzheimer's disease. These compounds were examined for their cholinesterase inhibition, pharmacokinetics, acute toxicity, lipophilicity, reversal of scopolamine induced memory impairment in rats (passive avoidance) and analgesia in mice. These compounds include N-alkyl-PYR and various sugar-N-alkyl-PYR conjugates, being 3-position substituted pyridinium derivatives of general formula (I). Some of the new compounds are less toxic than PYR in rats and may serve for the treatment of other CNS-related diseases such as stroke and PNS-diseases such as: myasthenia gravis, glaucoma, neurogenic urinary bladder, neuralgic pains and as a pretreatment of organophosphorus intoxication.--